Crosswinds and Gusts

Crosswinds and wind gusts are the leading cause of “weather-related” aviation accidents and, therefore, are a particular concern for Civil Air Patrol flight operations. Despite the prevalence of wind as a primary cause factor in more than 2800 accidents over an 11-year period (AOPA, Too Windy, 5 March, 1998), knowledge of key factors and procedural approaches can vary greatly within the aviation community (Flight Safety Foundation, Strong Gusty Crosswinds, 2 May, 2013). This article address a few factors that relate to consideration of crosswind limits during planning and execution.

Pilot’s Operating Handbook (POH) and Wind Limits

Cessna’s POH provides a direct crosswind value at which operations have been demonstrated. Cessna notes that maximum allowable crosswind velocity is dependent upon both pilot capability and airplane limitations. Obviously, pilot capability varies from pilot-to-pilot and day-to-day. Interestingly, a study of major carrier operations noted that approximately half of all runway excursions, hard landings, and tail/wing strikes occurred at less than the demonstrated crosswind. Given this variability and the fact that an “airplane limitation” has not been established through testing, Civil Air Patrol has taken the conservative approach of using the demonstrated crosswind value as an operational limit (ref: CAPR 70-1 9.10.5.4.1).

Surface Wind Reporting

Surface winds reported by tower personnel and ATIS are an average of the winds experienced over the past few minutes. Pilots may request an instantaneous wind report as a means of determining the current wind. Use of the most recent wind report in decision making is recommended; however, repeated requests for instantaneous reporting in variable and/or gusty conditions with the sole intent of getting a single “within limit” value reflects a questionable mindset.

Gusts in Calculation of Cross-wind Component

Civil Air Patrol pilots are required to consider gusts when determining if forecast or current wind conditions comply with any and all CAPR 70-1 wind limitations, to include crosswind component. For example, if winds are 270 at 10 knots gusting to 17, then the “maximum surface wind” is 17 knots and the crosswind component for runway 36 is 17 knots. If these values exceed any applicable limit in CAPR 70-1 9.10.5.4., then flight operations are not permitted.